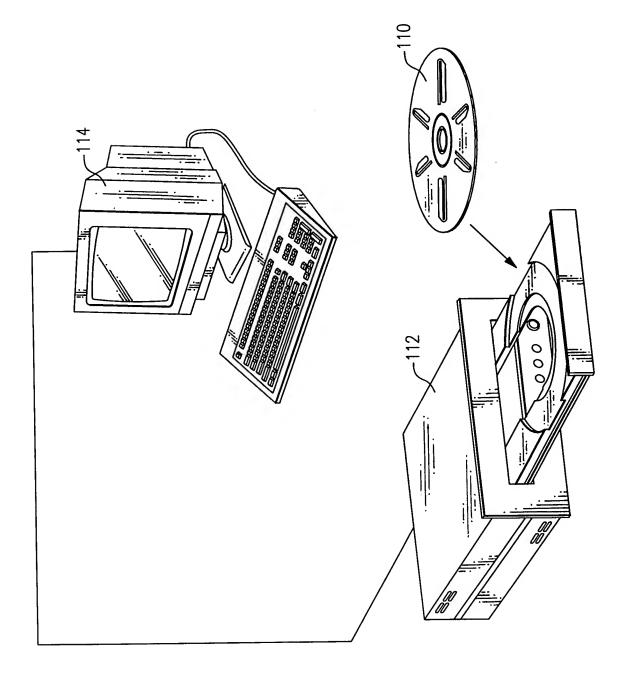
ITLE: METHODS FOR DECREASING NON-SPECIFIC MINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING HELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BT12 00102703(USP3)USP8X1

1/45



I certify that this document was submitted to the U.S. Patent and Trademark Office using U.S. Express Mail # <u>EL923484765US</u>
Jacquelyn Campbell

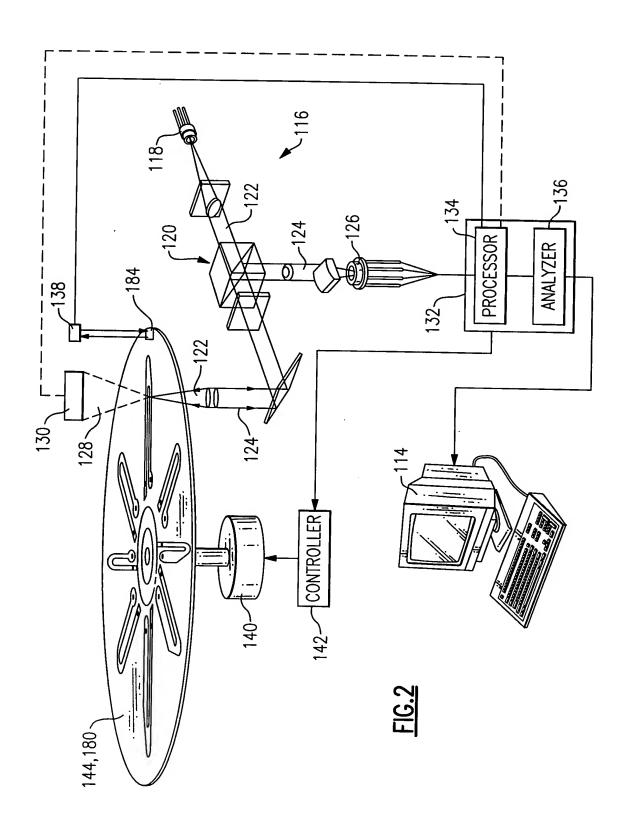
Print Name Old Pur Signature K February 28, 2002 Date

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS RELATED OPTICAL BIOD.

Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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LE: METHODS FOR DECREASING NON-SPECIFIC MOING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1 3/45 -158 -160 -164 FIG.3A 168<sup>-</sup> 160-158 & ر 170 

LE: METHODS FOR DECREASING NON-SPECIFIC MODING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

4/45

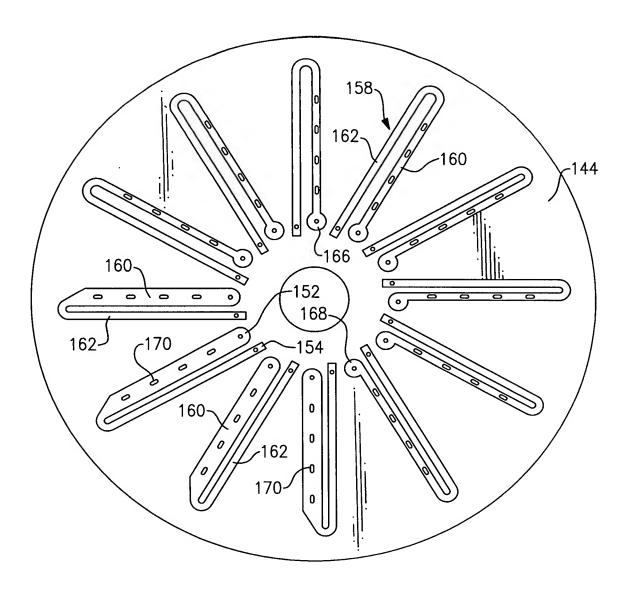


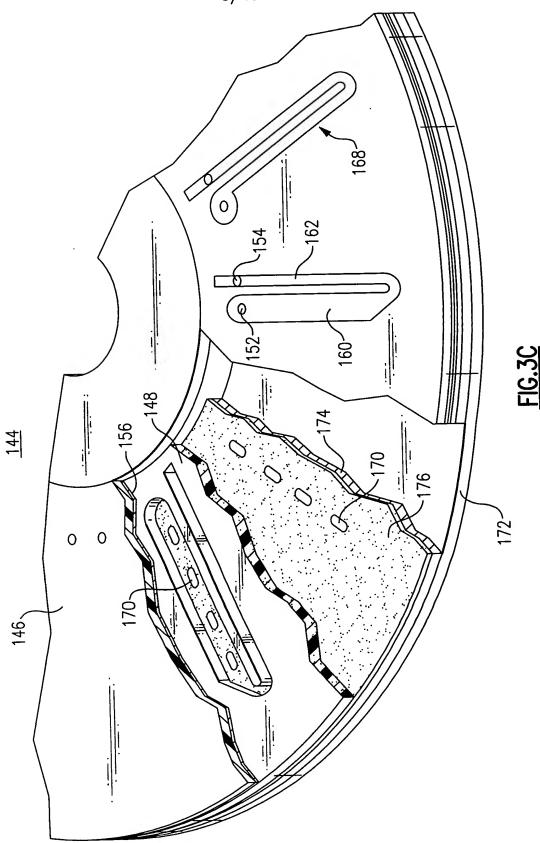
FIG.3B

E: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

5/45





LE: METHODS FOR DECREASING NON-SPECIFIC BINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS RELATED OPTICAL BIOD.

Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

6/45 180--184 -182 154 152 184 148 158 FIG.4A 158<sup>-</sup> 158 -158  $\bigcirc$ 150 (3)~-170 · (\_) -170  $\bigcirc$  $\bigcirc$  $\bigcirc$  $\bigcirc$ 

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1 7/45

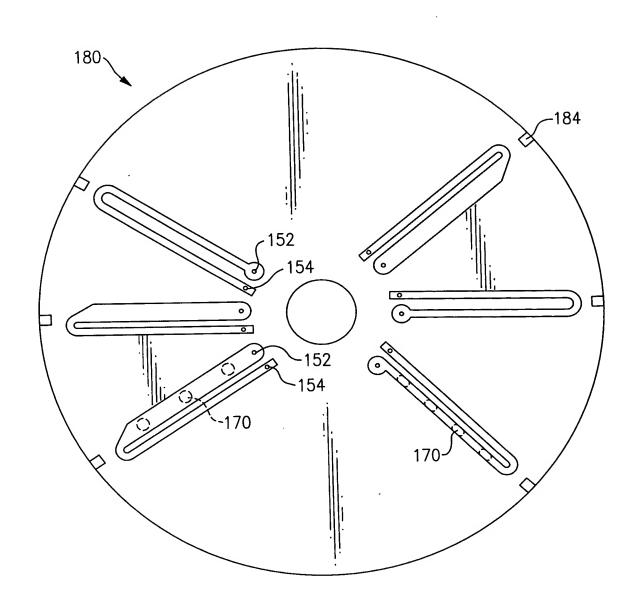
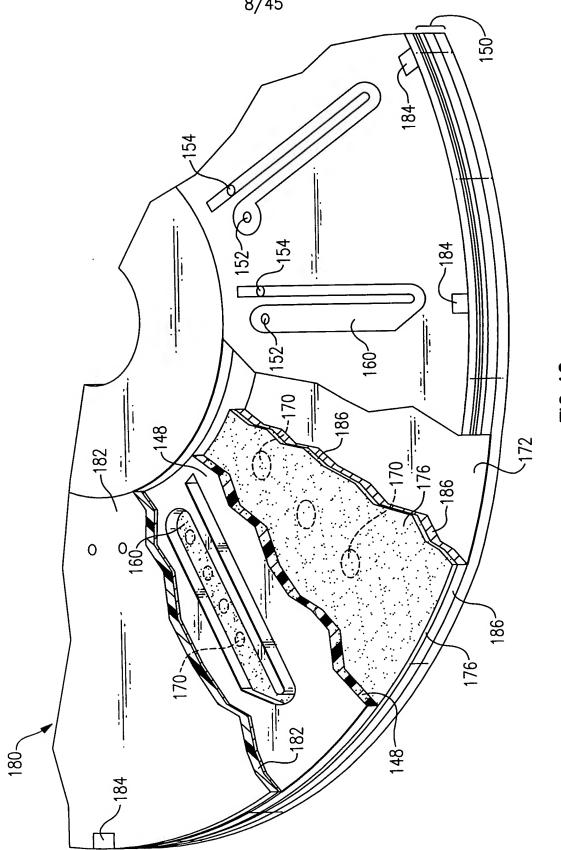


FIG.4B

LE: METHODS FOR DECREASING NON-SPECIFIC MINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

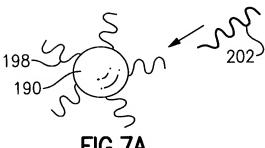
Docket No: BTI2 00102703(USP3)USP8X1

8/45



LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS RELATED OPTICAL BIOLICIA Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1 9/45 750 ~176 -186] 148 186 182 -130 PHOT0 160 124. 160 <del>88</del> 750 7150 46 160 170 188 FIG.6A

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS RELATED OPTICAL BIOD.:
Inventors: Phan, et al.
Docket No: BTI2 00102703(USP3)USP8X1
10/45



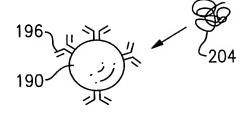


FIG.7B

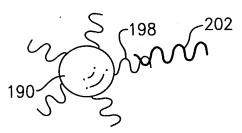


FIG.8A

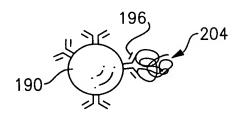


FIG.8B

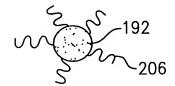


FIG.9A

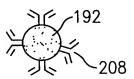


FIG.9B

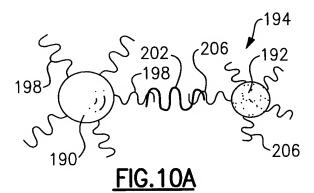
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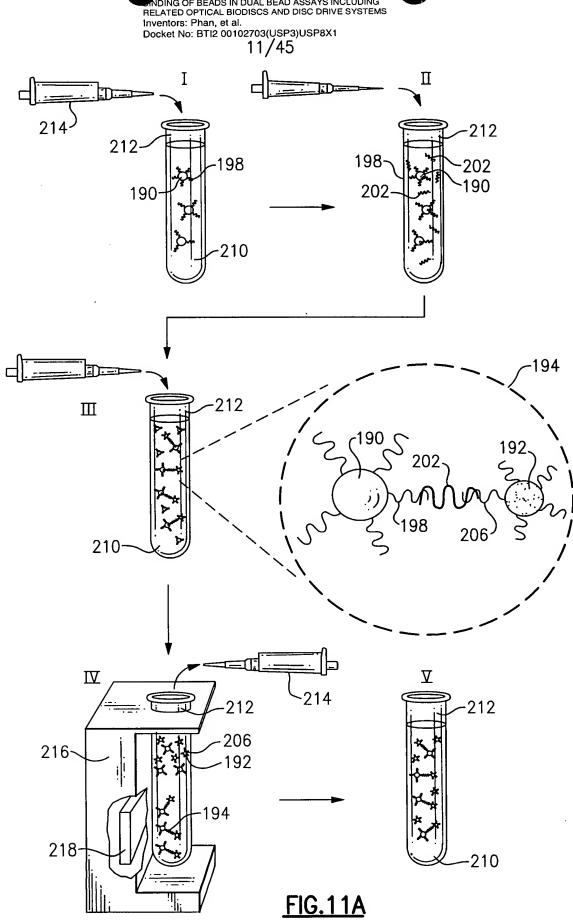
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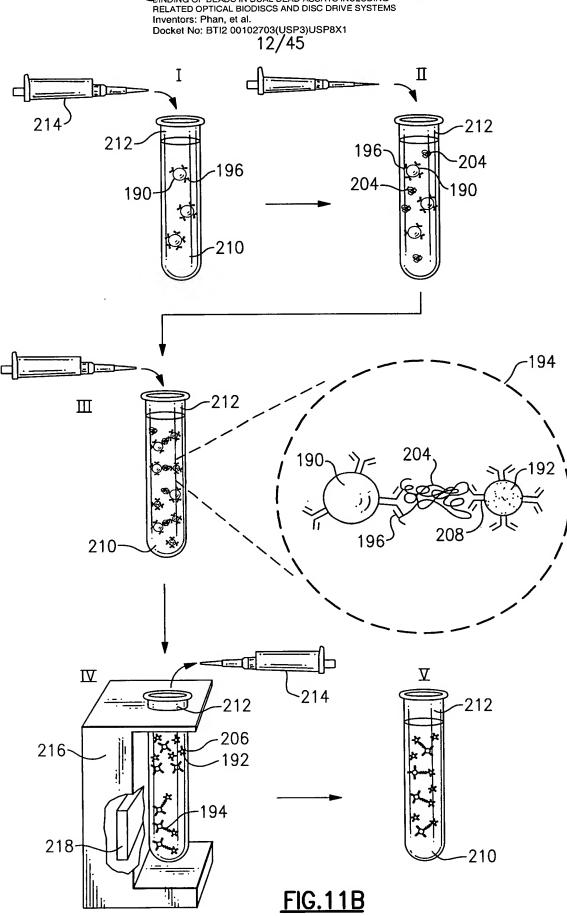
(208



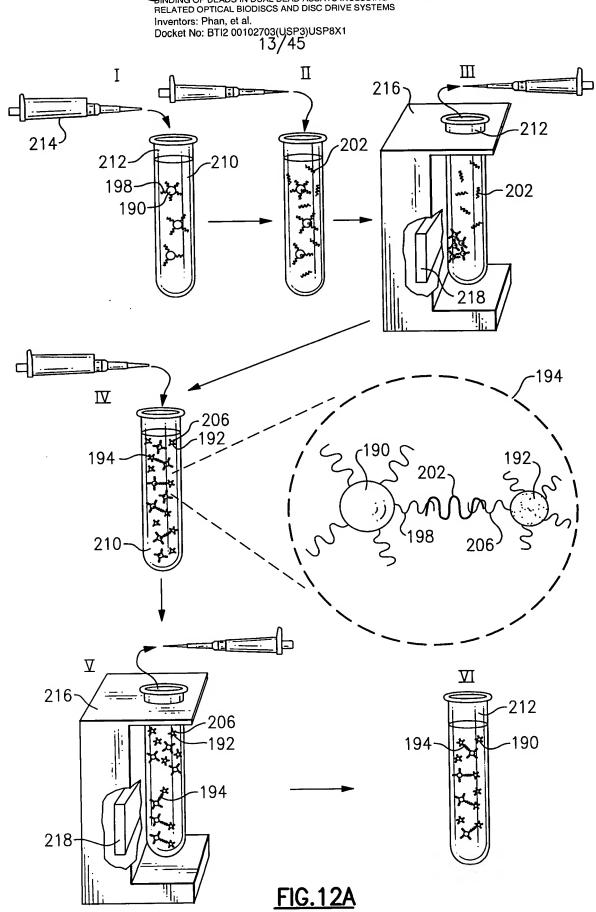
LE: METHODS FOR DECREASING NON-SPECIFIC MIDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS



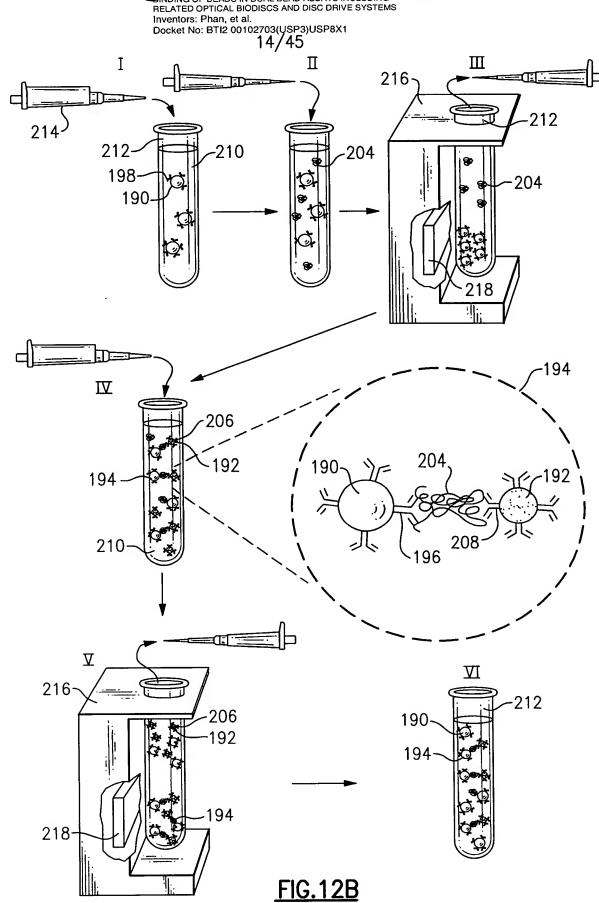
LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS



LE: METHODS FOR DECREASING NON-SPECIFIC BINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS



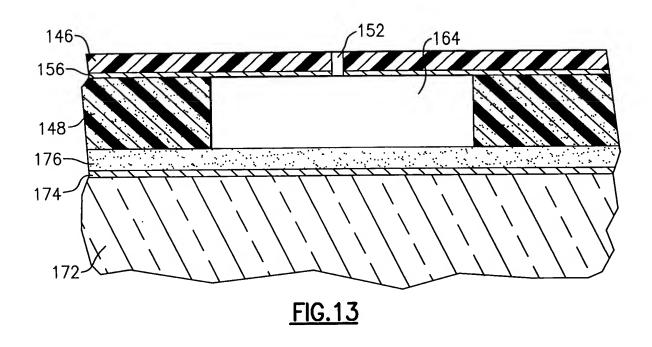
LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS

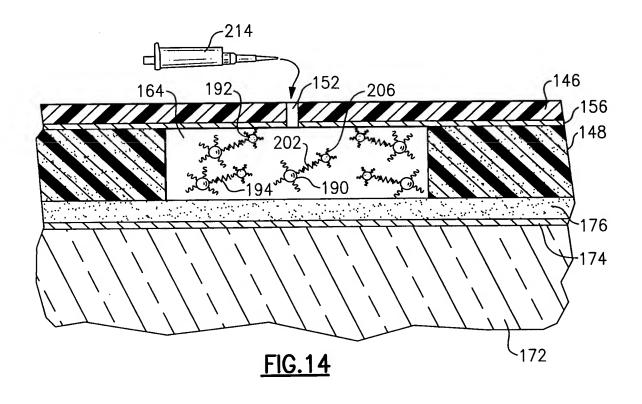


LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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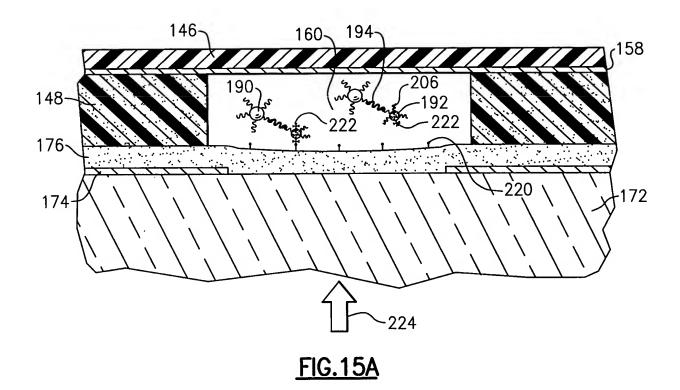


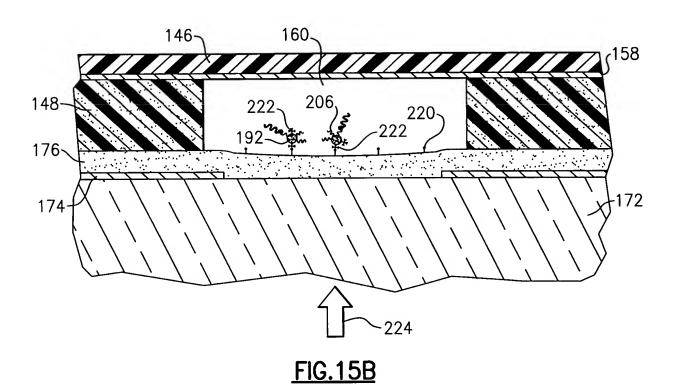


LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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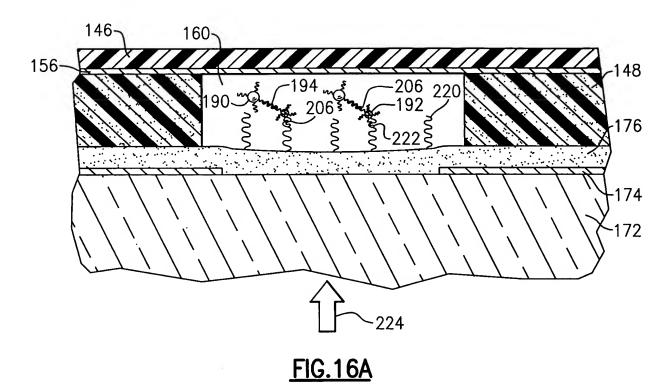


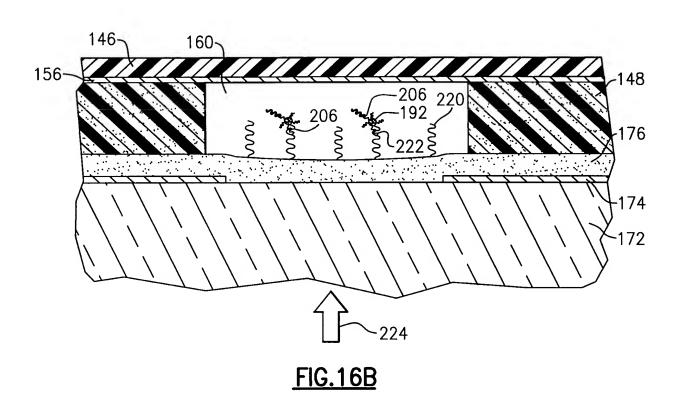


LE: METHODS FOR DECREASING NON-SPECIFIC NOING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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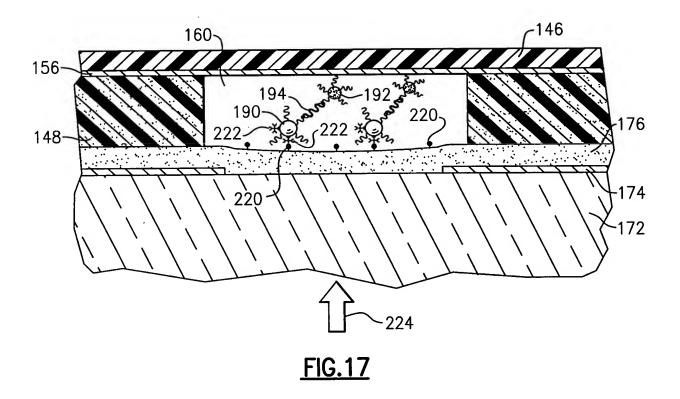


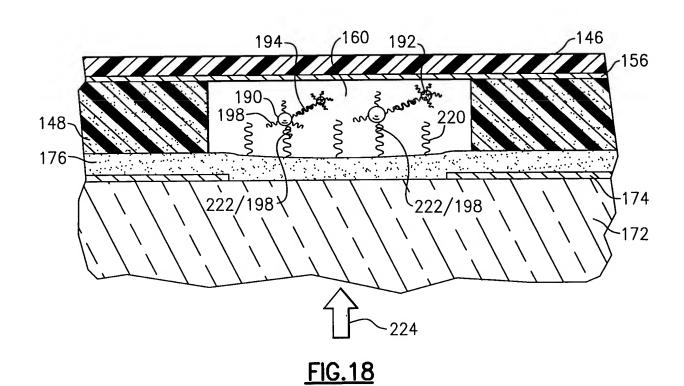


LE: METHODS FOR DECREASING NON-SPECIFIC BINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS RELATED OPTICAL BIOC.
Inventors: Phan, et al.
Docket No: BTI2 00102703(USP3)USP8X1
19/45

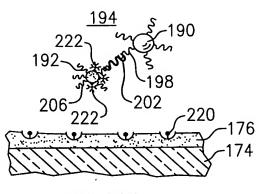
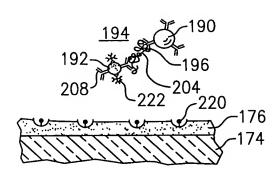


FIG.19A



**FIG.20A** 

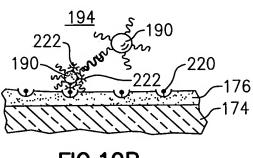


FIG.19B

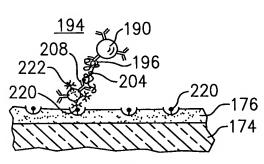


FIG.20B

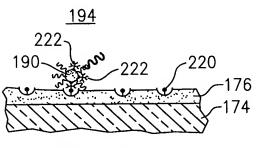


FIG.19C

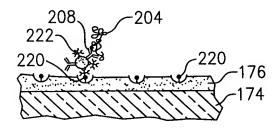
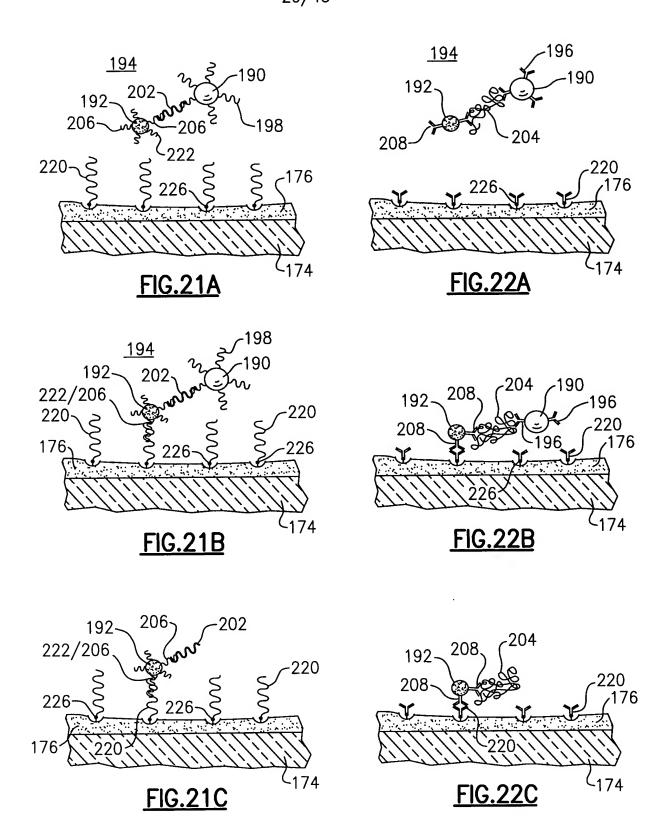


FIG.20C

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

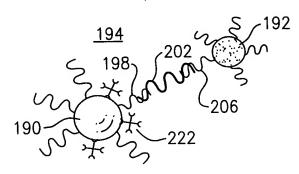
Docket No: BTI2 00102703(USP3)USP8X1

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E: METHODS FOR DECREASING NON-SPECIFIC MIDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS RELATED OPTICAL BIOD...
Inventors: Phan, et al.
Docket No: BTI2 00102703(USP3)USP8X1
21/45





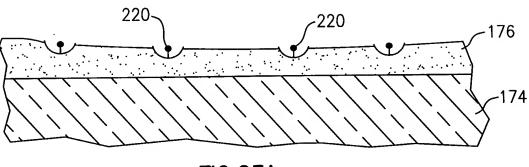
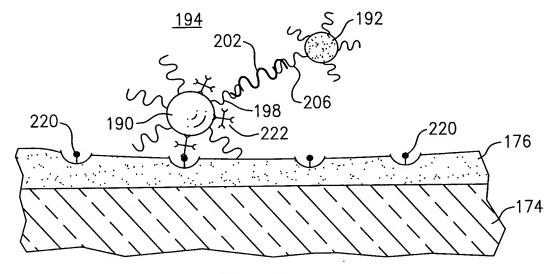


FIG.23A

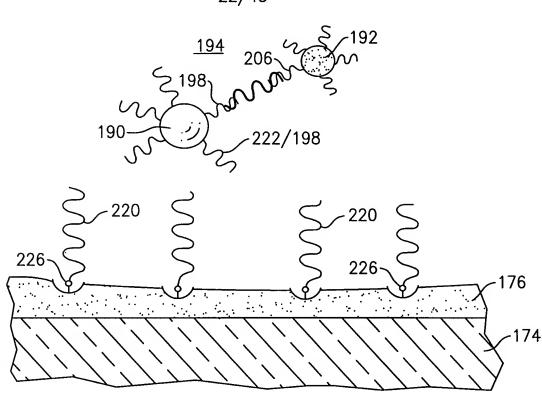


**FIG.23B** 

LE: METHODS FOR DECREASING NON-SPECIFIC ENDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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**FIG.24A** 

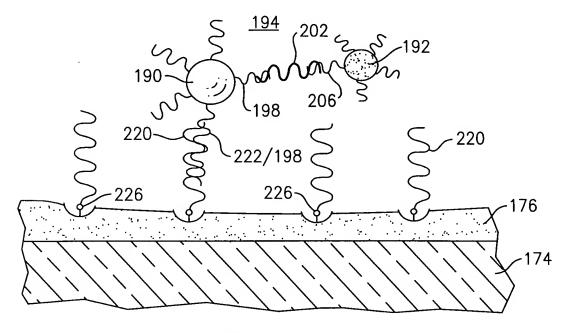
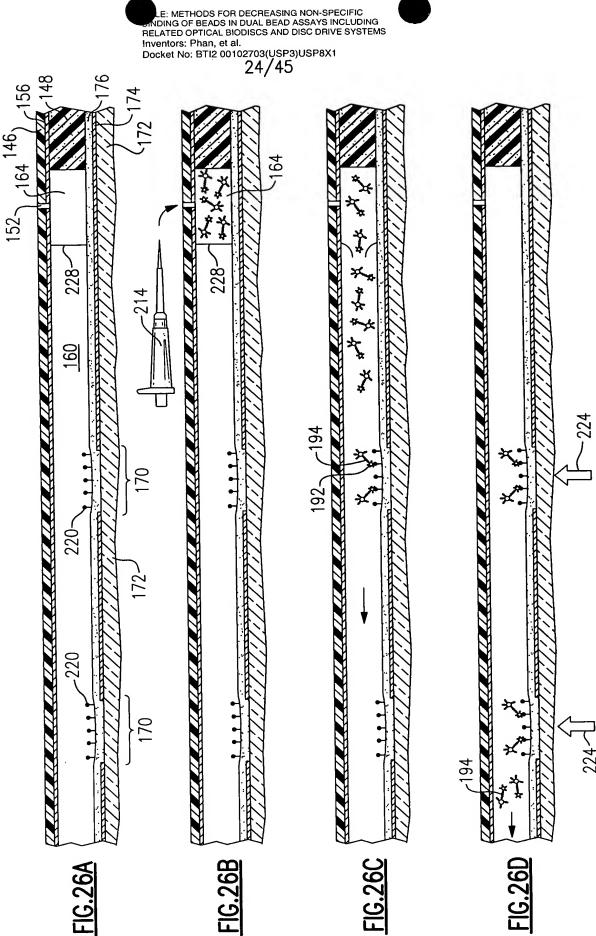


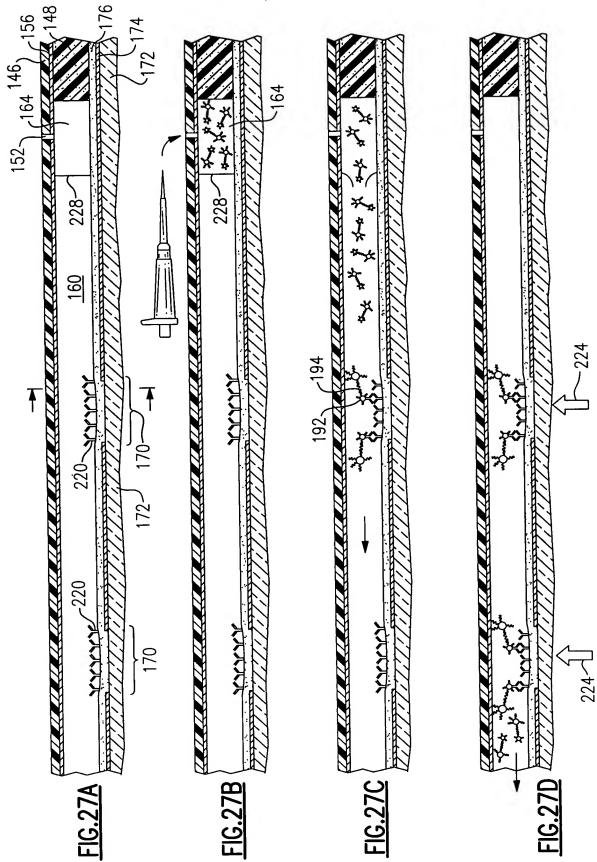
FIG.24B

LE: METHODS FOR DECREASING NON-SPECIFIC MODING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1 23/45 56 156 -146 64 152 152~ 228-<u>)</u> 194w w w 94 194. w w 146~ w 220-160 172 w 94 w w w w w 110



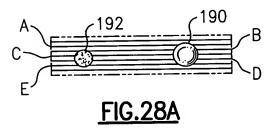
LE: METHODS FOR DECREASING NON-SPECIFIC ANDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1 25/45



LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

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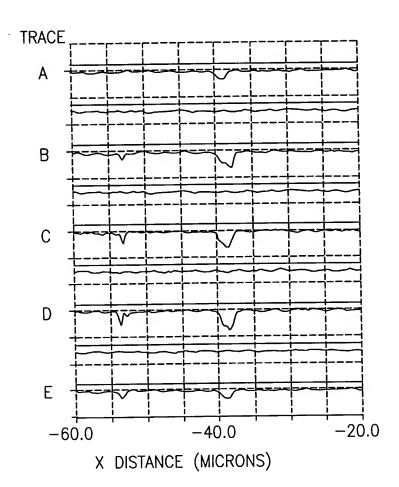
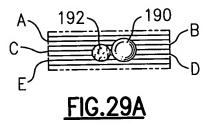


FIG.28B

LE: METHODS FOR DECREASING NON-SPECIFIC MOING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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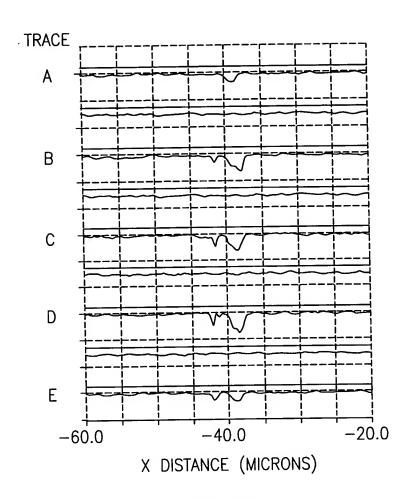
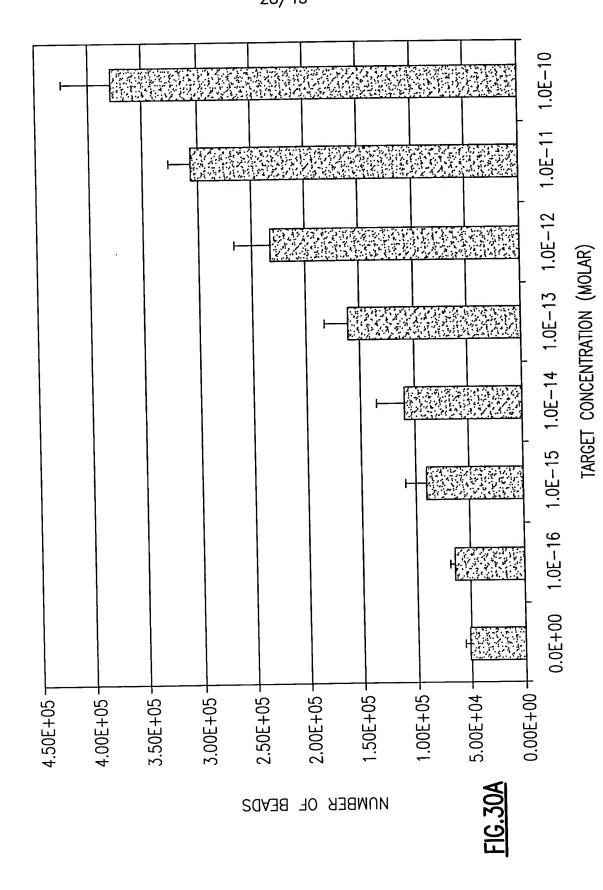


FIG.29B

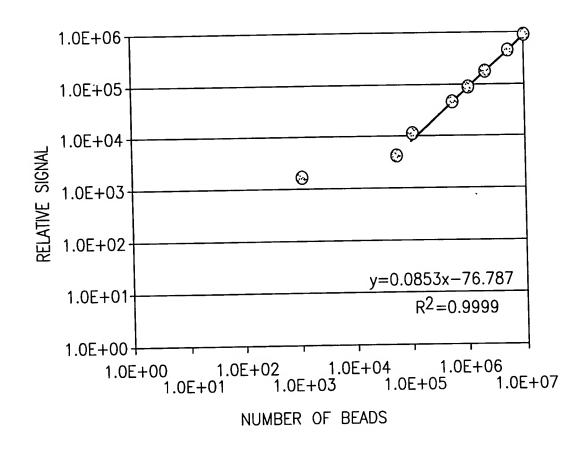
LE: METHODS FOR DECREASING NON-SPECIFIC BINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1 28/45



Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1

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**FIG.30B** 

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

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DUAL BEAD ASSAYS

REPORTER BEADS

TARGET DNA OR RNA

DETECTED BY CD READER

FIG.30C

E: METHODS FOR DECREASING NON-SPECIFIC
MOING OF BEADS IN DUAL BEAD ASSAYS INCLUDING
RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS

Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1

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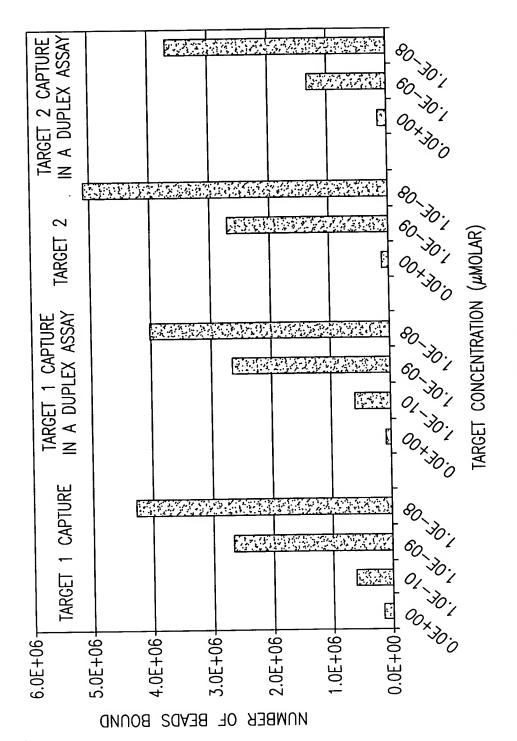


FIG.31

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

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## DUAL BEAD ASSAY MULTIPLEXING

MAGNETIC BEADS	REPORTER BEADS	DUPLEX
•	O O O	®⊙ ®⊖ <del></del>
M	O O @	<b>©</b> ○ <b>©</b> ② →
M		
M		M M

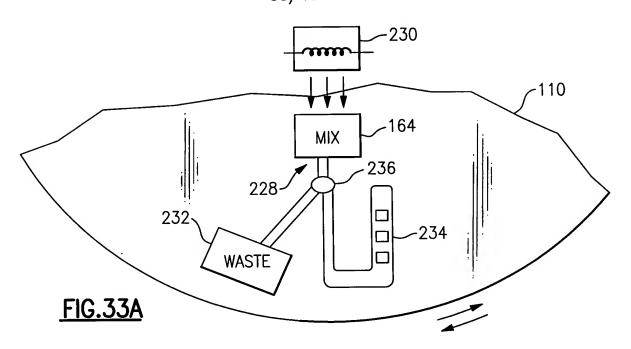
FIG.32

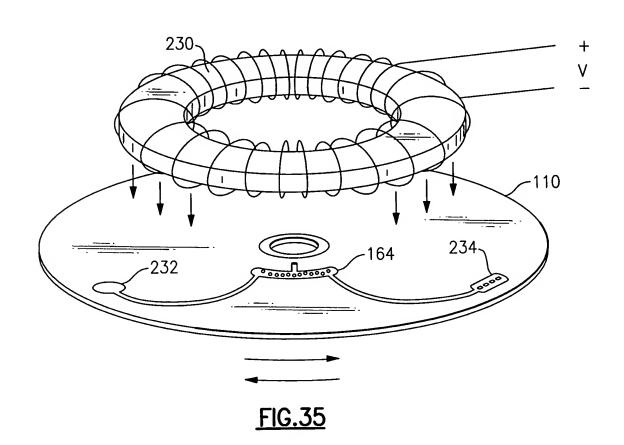
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LE: METHODS FOR DECREASING NON-SPECIFIC NDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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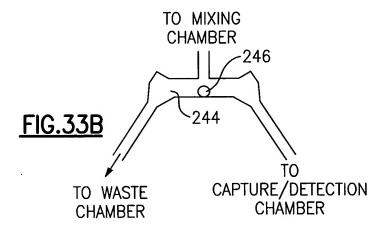


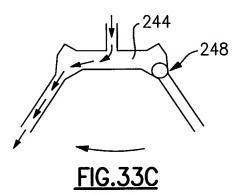


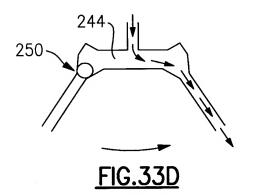
LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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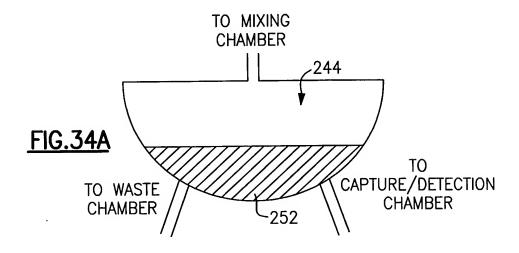


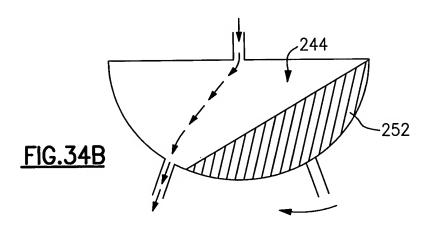


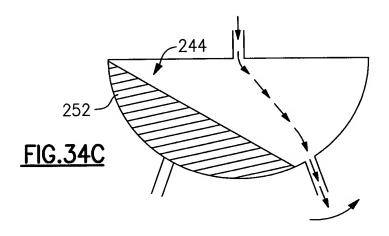
LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

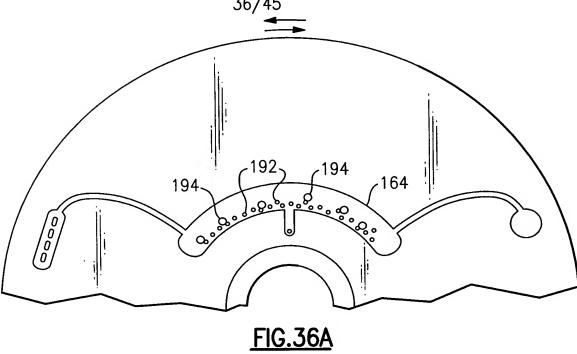
35/45

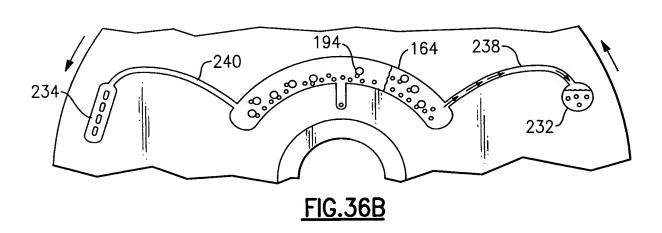






E: METHODS FOR DECREASING NON-SPECIFIC BINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.
Docket No: BTI2 00102703(USP3)USP8X1
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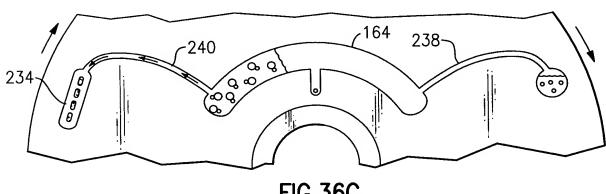


FIG.36C

LE: METHODS FOR DECREASING NON-SPECIFIC BINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS

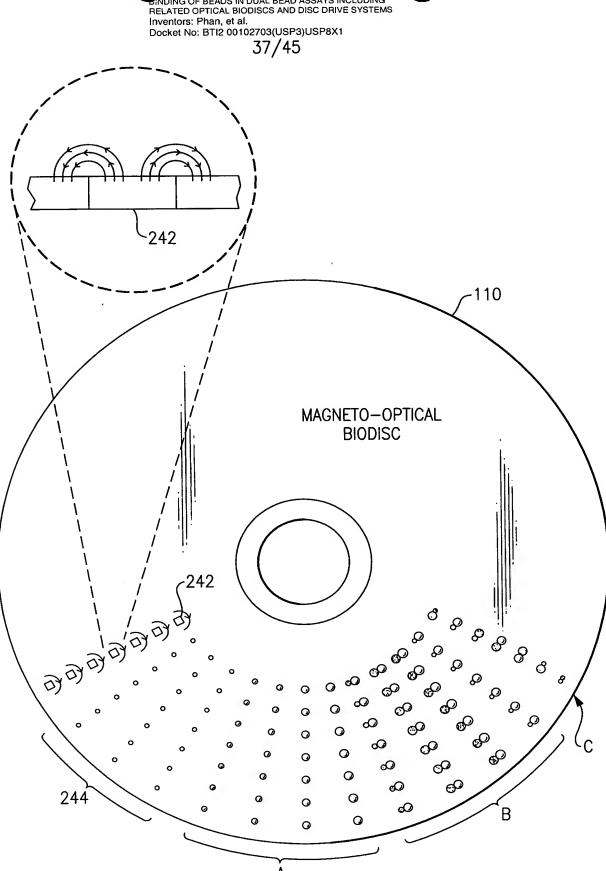
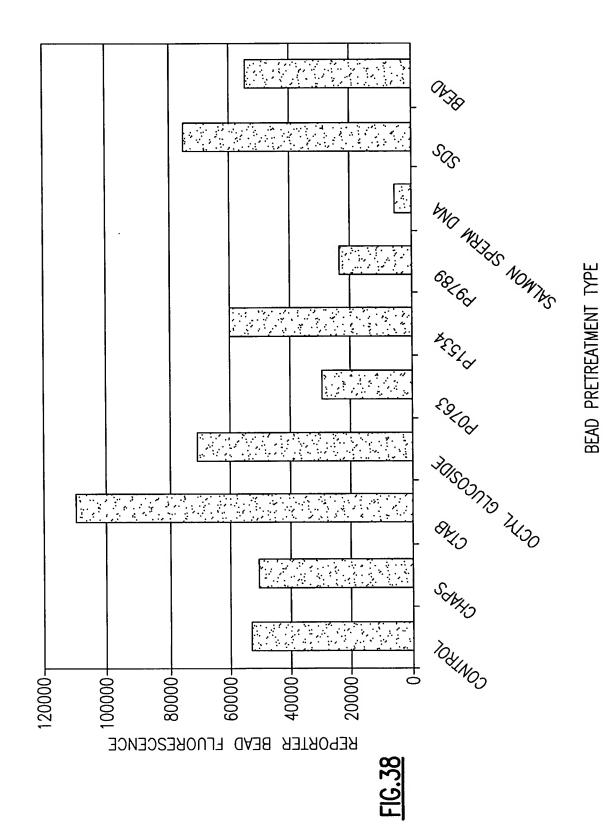


FIG.37

LE: METHODS FOR DECREASING NON-SPECIFIC STADING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

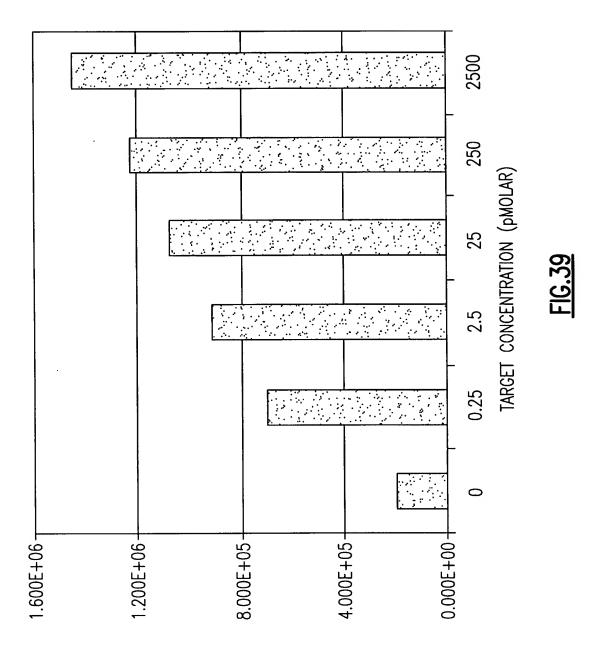
Docket No: BTI2 00102703(USP3)USP8X1

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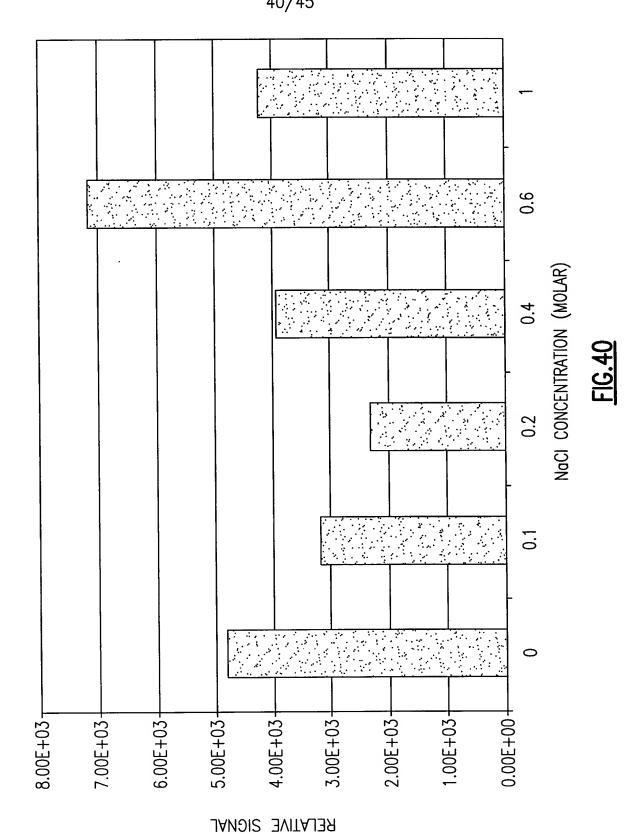


LE: METHODS FOR DECREASING NON-SPECIFIC BINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1

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NUMBER OF BEADS BOUND



LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

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LE: METHODS FOR DECREASING NON-SPECIFIC S. IDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.
Docket No: BTI2 00102703(USP3)USP8X1
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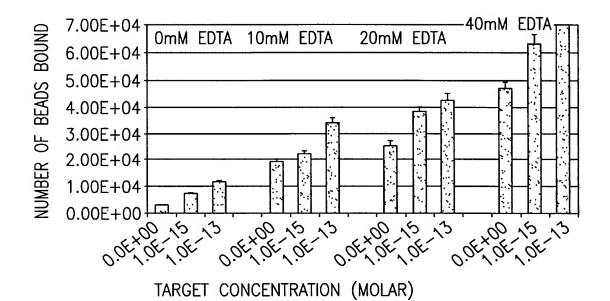
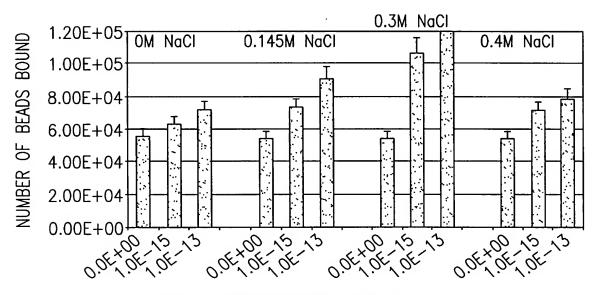


FIG.41

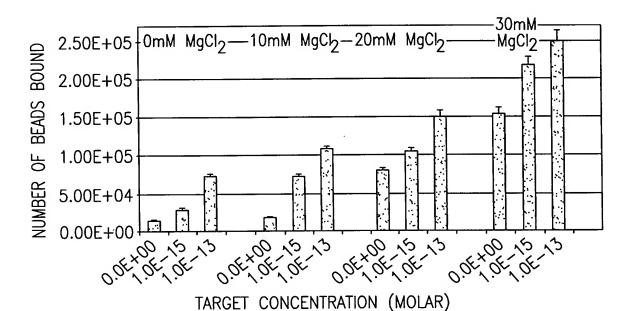


TARGET CONCENTRATION (MOLAR)

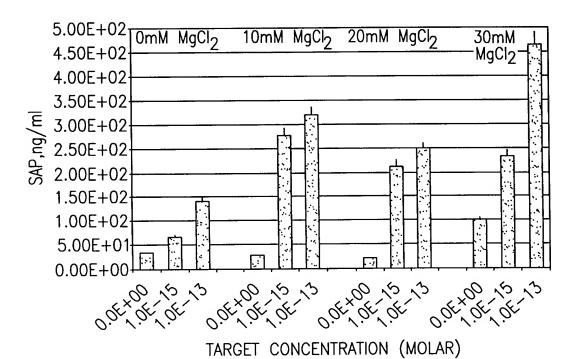
FIG.42

LE: METHODS FOR DECREASING NON-SPECIFIC MIDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

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**FIG.43A** 

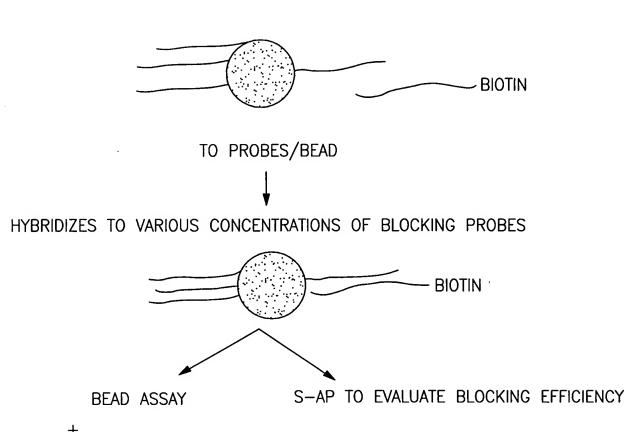


**FIG.43B** 

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.

Docket No: BTI2 00102703(USP3)USP8X1

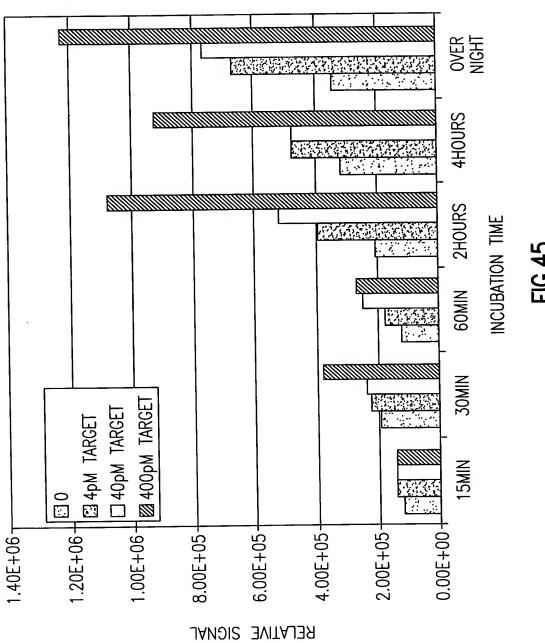
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**FIG.44** 

LE: METHODS FOR DECREASING NON-SPECIFIC SINDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al.
Docket No: BTI2 00102703(USP3)USP8X1

44/45



LE: METHODS FOR DECREASING NON-SPECIFIC EMDING OF BEADS IN DUAL BEAD ASSAYS INCLUDING RELATED OPTICAL BIODISCS AND DISC DRIVE SYSTEMS Inventors: Phan, et al. Docket No: BTI2 00102703(USP3)USP8X1 45/45

